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Hisashi Miyamori

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EXAMINER

RASHID, DAVID

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/522,236	Applicant(s) MIYAMORI, HISASHI	
	Examiner DAVID P. RASHID	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

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Continued Examination Under 37 C.F.R. § 1.114

[1] A request for continued examination under 37 C.F.R. § 1.114, including the fee set forth in 37 C.F.R. § 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 C.F.R. § 1.114, and the fee set forth in 37 C.F.R. § 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 C.F.R. § 1.114. Applicant's submission filed on Dec. 4, 2008 has been entered.

Amendments & Claim Status

[2] This office action is responsive to the Amendment Under 37 C.F.R. § 1.116 received on Dec. 4, 2008. Claims 1-8 and 10 remain pending.

Response to Arguments

[1] Remarks filed Nov. 7, 2008 with respect to claims 1-8 and 10 have been respectfully and fully considered, but are not found persuasive.

Summary of Remarks regarding Claims 1,10 Rejections under 35. U.S.C. § 103

Said amendment recites that the play event information obtaining section is configured to obtain and *recognize* a characteristic movement of each player.

...

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Applicant respectfully submits that *Pingali* does not disclose or fairly suggest this feature. In particular, *Pingali* only seems to deal with *tracking the ball flight*, not movement of the respective players. As such, Applicant respectfully submits that *Pingali* does not disclose the claimed invention, particularly, recognizing characteristic movements of the players. Applicant further points to the title of the *Pingali* disclosure: Ball Tracking and Virtual Replays for Innovative Tennis Broadcasts. (Emphasis added.)

The play event information in *Pingali* merely indicates the path of the tennis ball and the location of where the ball landed but not indicates characteristic movements of the players. As such, Applicant respectfully asks that the rejection be withdrawn.

Applicant's Remarks at 8-9, Nov. 7, 2008.

However, Applicant arguing that "movement of the respective players" are characteristic movements to be obtained and recognized under claims 1 and 10 is unpersuasive. Claims 1 and 10 recite "a play event information obtaining section configured to obtain and recognize play event information including characteristic movements of each of the players from picture information including in the contents. . .", , and does not correlate any "movement of the respective players" with the characteristic movements in the body of the claim.

Firstly, *Pingali* recording and tracking ball flight during a tennis match anticipates the claim element in question. Ball flight across a tennis court being tracked ("play event information" being obtained and recognized) is indicative that a player hit it, the location of where the ball it was hit from, the strength of the hit, the direction of the hit, etc (all "characteristic movements of each of the players"). The above examples are also additionally indicative of "movement of the respective players". The Examiner suggest further limiting to differentiate from the prior art of record.

Secondly, "a play event information obtaining section configured to obtain and recognize. . ." (emphasis added) requires only enough that *Pingali* must have the hardware configuration to do so. *Pingali* discloses the hardware configuration to enable such a section if so desired (i.e., computer, video camera, etc), independent of whether it is actually doing so or not.

Claim Rejections - 35 USC § 112

[3] The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Indefinite Limitations

M.P.E.P. § 2143.02(I) reads, in relevant part:

If a claim is subject to more than one interpretation, at least one of which would render the claim unpatentable over the prior art, the examiner should reject the claim as indefinite under 35 U.S.C. 112, second paragraph (*see* M.P.E.P. § 706.03(d)) and should reject the claim over the prior art based on the interpretation of the claim that renders the prior art applicable. *Ex parte Ionescu*, 222 USPQ 537 (Bd. Pat. App. & Inter. 1984) (Claims on appeal were rejected on indefiniteness grounds only; the rejection was reversed and the case remanded to the examiner for consideration of pertinent prior art.).

Claims 1-8 and 10 are rejected under 35 U.S.C. § 112, second paragraph for containing indefinite limitations in using the phrase “configured to” (e.g., “a score information obtaining section configured to obtain score information. . .” at claim 1, emphasis added).

A first interpretation allows an apparatus element having hardware configuration capable of performing its intended step (i.e., a score information obtaining section have the hardware configuration capable of obtaining score information).¹ A second interpretation allows that it is in fact doing so. The Examiner has chosen the first interpretation, and in addition suggests positively reciting elements and their purpose without any possible ambiguity (e.g., “a score information obtaining section ~~configured to obtain~~ obtaining score information. . .”).

Claim Rejections - 35 USC § 103

[4] The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Pingali in view of Pizano

[5] **Claims 1-2 and 10** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ball Tracking and Virtual Replays for Innovative Tennis Broadcasts, 15th International Conference on Pattern Recognition, 2000, Proceedings, Vol. 4, pg 152 – 156 (hereinafter “Pingali”) in view of U.S. Patent No. 6,101,274 (issued Aug. 8, 2000, hereinafter “Pizano”).

¹ See “configure, n.”, Merriam-Webster Dictionary, 11th ed. 2008), < <http://www.merriam-webster.com/>> (citing “to set up for operation especially in a particular way”)

Regarding **Claim 1**, while *Pingali* discloses an image recognition apparatus (“[a] general purpose computer” at p. 152, left column)

for recognizing movements of players matched against each other (the tennis match involves at least two players) between domains partitioned with such an obstacle as net in a sport match or game (the tennis match must have a net and partitioned domains) from contents including a television program being telecasted to show the sport match or game (“live television broadcasts” at p. 152, left column), an image material in an uncompleted state for broadcasting and contents recorded in such a recording medium as a VTR (Introduction, p. 152; fig. 2), [intended use; see M.P.E.P. § 2111.02(II)] the image recognition apparatus comprising:

a score information obtaining section (“[v]irtual [r]eplays and [v]isualization” section at p. 154) configured to [see § 103 rejection above] obtain score information (“includes score-based queries” at p. 154, right column; ALSO score information includes recorded paths of the tennis ball (e.g., fig. 3)) indicative of scores (“includes score-based queries” at p. 154, right column; ALSO the path of the ball is indicative of scores of the players) of the respective players which vary as the sport match or game proceeds;

a play event information obtaining section (“[v]irtual [r]eplays and [v]isualization” section at p. 154) configured to [see § 103 rejection above] obtain and recognize play event information (play event information would comprising the path of the tennis ball, including specifically the exact location where the tennis ball hits the court) including characteristic movements (the path of the tennis ball “includes” a characteristic movement of each of the players; *i.e.*, a tennis ball path approaching the opposite side of the court indicates that a specific player hit it, a characteristic movement) of each of the players from picture information (*e.g.*, fig. 3) included in the contents, the picture information containing images of the obstacle and the players (*e.g.*, fig. 6); and

an image substance recognizing section (“[v]irtual [r]eplays and [v]isualization” section at p. 154) configured to [see § 103 rejection above] make a comparison (the comparison of the tennis ball position before and after it hits the ground must be made to determine the position where tennis ball hits the ground) between a score information item obtained immediately before a point in time (*e.g.*, the path of the tennis ball before hitting the ground at fig. 3) of generation of

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the play event information (e.g., the exact location where the ball hit the ground at fig. 3) and a score information item obtained immediately after the point in time (e.g., the path of the tennis ball after hitting the ground at fig. 3) and make reference to a result brought by the play event information (play event information would comprising the path of the tennis ball, including specifically the exact location where the tennis ball hits the court), thereby recognizing a substance (the substance being the exact location on the tennis court) of an image provided by the play event information, *Pingali* does not teach wherein the score information itself is displayed on a screen.

Pizano discloses an apparatus for detecting and interpreting textual captions in digital video signals (fig. 6) that teaches wherein the score information itself is displayed on a screen (“3) SPORTS/TRANSPARENT” in fig. 1; the score in fig. 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the screen of *Pingali* to include score information as taught by *Pizano* “to identify the collection of video frames that contain text captions.”, *Pizano*, 5:54-56 and “to create a score browser which would enable a person to move directly to specific portions of the video”, *Pizano*, 1:61-63.

Regarding **Claim 2**, while *Pingali* in view of *Pizano* disclose the image recognition apparatus according to Claim 1, *Pingali* in view of *Pizano* do not teach wherein the score information obtaining section is configured to [see § 103 rejection above] obtain the score information from at least one of the picture information included in the contents, sound information including commentary voice of a commentator, and data information transmitted as multiplexed on radio waves during broadcasting.

Pizano discloses an apparatus for detecting and interpreting textual captions in digital video signals (fig. 6; fig. 7; fig. 10) that teaches wherein a score information obtaining section (section responsible for fig. 6, fig. 7, fig. 10) is configured to [see § 103 rejection above] obtain the score information (bottom pictures of the score in fig. 10) from at least one of the picture information (top picture in fig. 10) included in the contents (the contents being everything displayed at the top picture in fig. 10), sound information including commentary voice of a commentator, and data information transmitted as multiplexed on radio waves during broadcasting.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the score information obtaining section of *Pingali* in view of *Pizano* to include configuring to obtain the score information from at least one of the picture information included in the contents, sound information including commentary voice of a commentator, and data information transmitted as multiplexed on radio waves during broadcasting as taught by *Pizano* “to identify the collection of video frames that contain text captions.”, *Pizano*, Col. 5, lines 54 – 56 and “to create a score browser which would enable a person to move directly to specific portions of the video”, *Pizano*, 1:61-63.

Regarding **Claim 10**, Claim 1 recites identical features as in Claim 10. Thus, references/arguments equivalent to those presented above for Claim 1 are equally applicable to Claim 10.

Pingali in view of Pizano and Sudhir

[6] **Claims 3-8** are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Pingali* in view of *Pizano* and Automatic Classification of Tennis Video for High-level Content-based Retrieval, Proceedings of the 1998 International Workshop on Content-Based Access of Image and Video Databases (CAIVD '98), 1998, pp 81 – 90 (*hereinafter* “Sudhir”).

Regarding **Claim 3**, while *Pingali* in view of *Pizano* disclose image recognition apparatus according to Claims 1 or 2, further comprising:

a domain item extracting section (“[v]irtual [r]eplays and [v]isualization” section at p. 154) configured to [see § 103 rejection above] extract instrument information on an instrument moving between the domains to serve as an object of score count in the sport match or game (an ace by Sampras in fig. 3 was within the tennis boundary domain, thus a scoring count)

Pingali in view of *Pizano* does not teach a domain item extracting section configured to extract from the picture information facility information including information on the obstacle, information on the domains and information on boundary lines between the domains and an area outside the domains, and player's position information indicative of a player's position; rule information storage section configured to store rule information on the sport match or game; and basic movement storage section configured to store basic movement information on players' characteristic movements generalized in a sport of concern, wherein the play event information

obtaining section includes a play event information determining section configured to determine a play event information item on a play event characteristic of each of the players included in the picture information as the play event information based on domain items extracted from the picture information, the rule information, and the basic movement information stored in the basic movement information storage section.

Sudhir discloses an automatic classification of tennis video for high-level content-based retrieval (Introduction, pg 81) that teaches

a domain item extracting section (fig. 3; Table 2) configured to [see § 103 rejection above] extract from the picture information facility information including information on the obstacle (dashed line in fig. 7), information on the domains and information on boundary lines between the domains and an area outside the domains (fig. 7), and player's position information indicative of a player's position ("Player Tracking Module" in fig. 1);

rule information storage section ("court-line detection module" in fig. 1 for storing rules on court-line boundaries) configured to [see § 103 rejection above] store rule information on the sport match or game; and

basic movement storage section ("Player Tracking Module" in fig. 1) configured to [see § 103 rejection above] store basic movement information on players' characteristic movements generalized in a sport of concern, wherein a play event information obtaining section ("High-level Reasoning module" in deciding plays like "high-level events like baseline-rallies, passing-shots, serve-and-volleying and net-games" in s. 9, p 89) includes a play event information determining section configured to [see § 103 rejection above] determine a play event information item on a play event characteristic of each of the players included in the picture information as the play event information based on domain items (the boxes outlining the players on the right side of fig. 6 are the domains) extracted from the picture information, the rule information (fig. 7), and the basic movement information stored in the basic movement information storage section (fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of *Pingali* in view of *Pizano* to include a domain item extracting section configured to extract from the picture information facility information including information on the obstacle, information on the domains and information on boundary lines

between the domains and an area outside the domains, and player's position information indicative of a player's position; rule information storage section configured to store rule information on the sport match or game; and basic movement storage section configured to store basic movement information on players' characteristic movements generalized in a sport of concern, wherein the play event information obtaining section includes a play event information determining section configured to determine a play event information item on a play event characteristic of each of the players included in the picture information as the play event information based on domain items extracted from the picture information, the rule information, and the basic movement information stored in the basic movement information storage section as taught by *Sudhir* as “there is dire need for algorithms that are able to automatically infer high-level content from data.”, *Sudhir*, Introduction, p 81.

Regarding **Claim 4**, while *Pingali* in view of *Pizano* and *Sudhir* disclose the apparatus according to Claim 3, *Pingali* in view of *Pizano* and *Sudhir* do not teach wherein the player's position information is position information indicative of a domain containing each of the players and the instrument constantly held and used by the player.

Sudhir discloses an automatic classification of tennis video for high-level content-based retrieval (Introduction, pg 81) that teaches wherein the player's position information is position information indicative of a domain containing each of the players and the instrument constantly held and used by the player (the player, the tennis racquet, and tennis ball at the point of impact are all in the boxes (domain) on the right side of fig. 6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of *Pingali* in view of *Pizano* and *Sudhir* to include wherein the player's position information is position information indicative of a domain containing each of the players and the instrument constantly held and used by the player as taught by *Sudhir* as “there is dire need for algorithms that are able to automatically infer high-level content from data.”, *Sudhir*, Introduction, p 81.

Regarding **Claim 5**, *Pingali* discloses wherein the domain item extracting section (“[v]irtual [r]eplays and [v]isualization” section at p. 154) is configured to [see § 103 rejection above] extract the player's position information (the origination of the path of the tennis ball in fig. 2 and fig. 4 is the player's position information) from the picture information (fig. 4) based

on the facility information (coordinates to track/detect/match instruments, obstacle, and boundaries in fig. 4 and fig. 2) extracted by the domain item extracting section.

Regarding **Claim 6**, *Pingali* discloses wherein the domain item extracting section (“[v]irtual [r]eplays and [v]isualization” section at p. 154) is configured to [see § 103 rejection above] extract the instrument information from the picture information (fig. 2, fig. 4, path of the tennis ball) based on the facility information (coordinates to track/detect/match instruments, obstacle, and boundaries in fig. 4 and fig. 2) and the player's position information (the origination of the path of the tennis ball in fig. 2 and fig. 4 is the player's position information) extracted by the domain item extracting section.

Regarding **Claim 7**, while *Pingali* in view of *Pizano* and *Sudhir* disclose the apparatus according to Claim 3, *Pingali* in view of *Pizano* and *Sudhir* do not teach wherein the play event information obtaining section includes a play event index information output section configured to output plural play event information items determined by the play event information determining section as arranged in a time sequence.

Sudhir discloses an automatic classification of tennis video for high-level content-based retrieval (Introduction, p. 81) that teaches wherein the play event information obtaining section includes a play event index information output section (Table 3, p. 88) configured to [see § 103 rejection above] output plural play event information items (“High-level Annotation” column in Table 3) determined by the play event information determining section as arranged in a time sequence (the table suggests the arrangement of time sequence).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of *Pingali* in view of *Pizano* and *Sudhir* to include wherein the play event information obtaining section includes a play event index information output section configured to output plural play event information items determined by the play event information determining section as arranged in a time sequence as taught by *Sudhir* as “there is dire need for algorithms that are able to automatically infer high-level content from data.”, *Sudhir*, Introduction, p 81.

Regarding **Claim 8**, while *Pingali* in view of *Pizano* and *Sudhir* disclose the apparatus according to Claim 3, *Pingali* in view of *Pizano* and *Sudhir* do not teach wherein the play event

index information output section is configured to output the play event information items together with instrument information items in a time sequence.

Sudhir discloses an automatic classification of tennis video for high-level content-based retrieval (Introduction, p. 81) that teaches wherein the play event index information output section (Table 3, p. 88) is configured to [see § 103 rejection above] output the play event information items (“High-level Annotation” column in Table 3) together with instrument information items (“BL” is “Baseline”, and thus the table indicates the location information from which the instrument was during the serve) in a time sequence (the table suggests the arrangement of time sequence).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of *Pingali* in view of *Pizano* and *Sudhir* to include wherein the play event index information output section is configured to output the play event information items together with instrument information items in a time sequence as taught by *Sudhir* as “there is dire need for algorithms that are able to automatically infer high-level content from data.”, *Sudhir*, Introduction, p. 81.

Conclusion

[7] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Vikkram Bali can be reached on (571) 272-74155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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